

## Gas Discharge Tube (GDT) Data Sheet

### Features

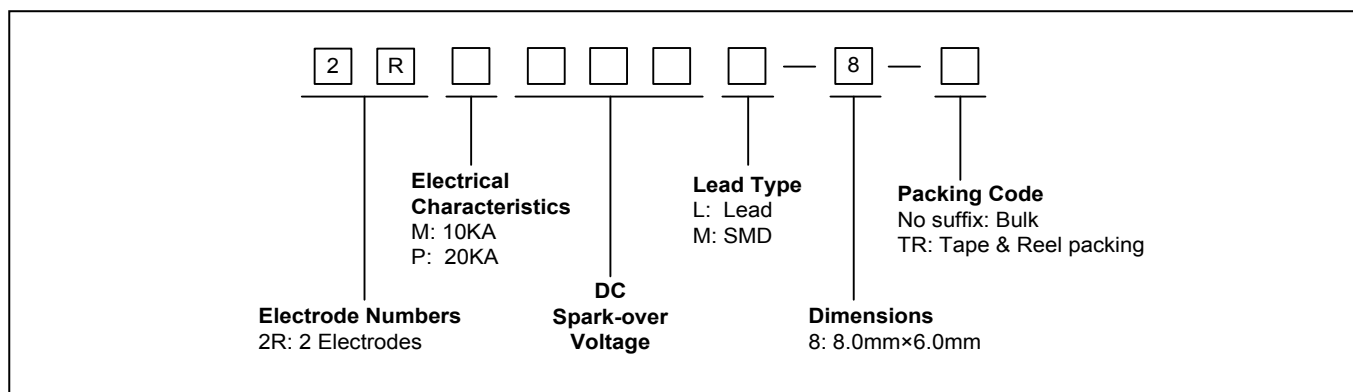
- Provide ultra-fast response to surge voltage from slow-rising surge of 100V/s to rapid-rising surge of 1KV/ $\mu$ s
- Stable breakdown voltage
- High insulation resistance
- Low capacitance ( $\leq 1.5$ pF)
- High holdover voltage
- Large absorbing transient current capability
- Micro-Gap Design
- Size: 8.0mm\*6.0mm
- Storage and operating temperature: -40°C ~ +85°C
- Meets MSL level 1, per J-STD-020
- Safety certification: E244458



### Applications

- Repeaters, Modems
- Telephone Interface, Line cards
- Data communication equipment
- Line test equipment

### Part Number Code



### Ordering Code for different package in 2RMxxxL-8 and 2RPxxxL-8 series

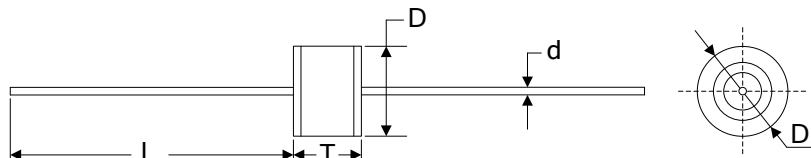
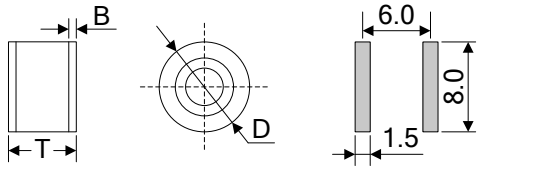
Box package: Add suffix "/B" at the end of the part number, such as 2RM075L-8/B or 2RP120L-8/B

Reel package: Add suffix "/TR" at the end of the part number, such as 2RM075L-8/TR or 2RP120L-8/TR

### Marking

|                                                                                     |                         |
|-------------------------------------------------------------------------------------|-------------------------|
|  | : BritghtKing Logo      |
| 2RM090-8                                                                            | : Device Marking Code   |
| XXXX                                                                                | : Internal Control Code |

## Dimensions

| L Type                                                                            | Symbol | Dimension (mm) |            |
|-----------------------------------------------------------------------------------|--------|----------------|------------|
|                                                                                   |        | Spec.          | Tolerance  |
|  | D      | 8.0            | +0.3, -0.5 |
|                                                                                   | T      | 6.0            | +0.3, -0.5 |
|                                                                                   | d      | 0.8            | ±0.1       |
|                                                                                   | L      | 30.0           | Max.       |
| M Type                                                                            | Symbol | Dimension (mm) |            |
|                                                                                   |        | Spec.          | Tolerance  |
|                                                                                   |        | Spec.          | Tolerance  |
|  | D      | 8.0            | +0.3, -0.5 |
|                                                                                   | T      | 6.0            | +0.3, -0.5 |
|                                                                                   | B      | 0.5            | ±0.1       |

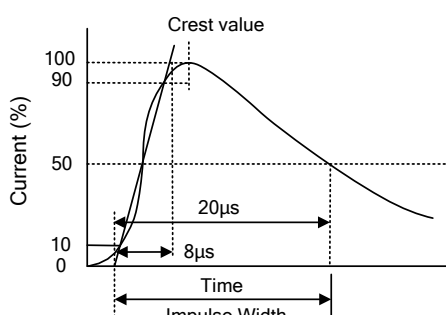
## Electrical Characteristics

| Part Number |           | DC Spark-over Voltage | Maximum Impulse Spark-over Voltage | Nominal Impulse Discharge Current | Alternating Discharge Current | Impulse Life   | Minimum Insulation Resistance |      | Maximum Capacitance | Device Marking Code |
|-------------|-----------|-----------------------|------------------------------------|-----------------------------------|-------------------------------|----------------|-------------------------------|------|---------------------|---------------------|
|             |           | 100V/s                | 1000V/μs                           | 8/20μs 10times                    | 50Hz, 1sec                    | 10/1000μs 100A | Test Voltage                  | (GΩ) | 1MHz                |                     |
|             |           | (V)                   | (V)                                | (kA)                              | (A)                           | (times)        | DC(V)                         |      | (pF)                |                     |
| 2RM075L-8   | 2RM075M-8 | 75±20%                | 600                                | 10                                | 10                            | 500            | 25                            | 1.0  | 1.5                 | 2RM075-8            |
| 2RM090L-8   | 2RM090M-8 | 90±20%                | 600                                | 10                                | 10                            | 500            | 50                            | 1.0  | 1.5                 | 2RM090-8            |
| 2RM120L-8   | 2RM120M-8 | 120±20%               | 600                                | 10                                | 10                            | 500            | 50                            | 1.0  | 1.5                 | 2RM120-8            |
| 2RM145L-8   | 2RM145M-8 | 145±20%               | 700                                | 10                                | 10                            | 500            | 100                           | 1.0  | 1.5                 | 2RM145-8            |
| 2RM150L-8   | 2RM150M-8 | 150±20%               | 700                                | 10                                | 10                            | 500            | 100                           | 1.0  | 1.5                 | 2RM150-8            |
| 2RM230L-8   | 2RM230M-8 | 230±20%               | 700                                | 10                                | 10                            | 500            | 100                           | 1.0  | 1.5                 | 2RM230-8            |
| 2RM250L-8   | 2RM250M-8 | 250±20%               | 800                                | 10                                | 10                            | 500            | 100                           | 1.0  | 1.5                 | 2RM250-8            |
| 2RM300L-8   | 2RM300M-8 | 300±20%               | 900                                | 10                                | 10                            | 500            | 100                           | 1.0  | 1.5                 | 2RM300-8            |
| 2RM350L-8   | 2RM350M-8 | 350±20%               | 900                                | 10                                | 10                            | 500            | 100                           | 1.0  | 1.5                 | 2RM350-8            |
| 2RM400L-8   | 2RM400M-8 | 400±20%               | 1000                               | 10                                | 10                            | 500            | 100                           | 1.0  | 1.5                 | 2RM400-8            |
| 2RM470L-8   | 2RM470M-8 | 470±20%               | 1100                               | 10                                | 10                            | 500            | 250                           | 1.0  | 1.5                 | 2RM470-8            |
| 2RM600L-8   | 2RM600M-8 | 600±20%               | 1300                               | 10                                | 10                            | 500            | 250                           | 1.0  | 1.5                 | 2RM600-8            |
| 2RM800L-8   | 2RM800M-8 | 800±20%               | 1500                               | 10                                | 10                            | 500            | 250                           | 1.0  | 1.5                 | 2RM800-8            |

## Electrical Characteristics

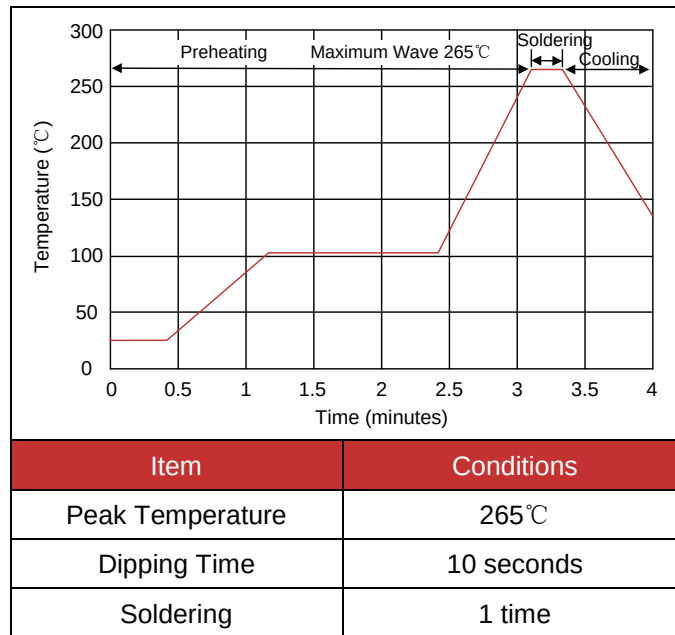
| Part Number |           | DC Spark-over Voltage | Maximum Impulse Spark-over Voltage | Nominal Impulse Discharge Current | Alternating Discharge Current | Impulse Life   | Minimum Insulation Resistance |      | Maximum Capacitance | Device Marking Code |
|-------------|-----------|-----------------------|------------------------------------|-----------------------------------|-------------------------------|----------------|-------------------------------|------|---------------------|---------------------|
|             |           | 100V/s                | 1000V/μs                           | 8/20μs 10times                    | 50Hz, 1sec                    | 10/1000μs 100A | Test Voltage                  | (GΩ) | 1MHz                |                     |
|             |           | (V)                   | (V)                                | (KA)                              | (A)                           | (times)        | DC(V)                         |      | (pF)                |                     |
| 2RP075L-8   | 2RP075M-8 | 75±20%                | 600                                | 20                                | 20                            | 500            | 25                            | 1.0  | 1.5                 | 2RP075-8            |
| 2RP090L-8   | 2RP090M-8 | 90±20%                | 600                                | 20                                | 20                            | 500            | 50                            | 1.0  | 1.5                 | 2RP090-8            |
| 2RP120L-8   | 2RP120M-8 | 120±20%               | 600                                | 20                                | 20                            | 500            | 50                            | 1.0  | 1.5                 | 2RP120-8            |
| 2RP145L-8   | 2RP145M-8 | 145±20%               | 700                                | 20                                | 20                            | 500            | 100                           | 1.0  | 1.5                 | 2RP145-8            |
| 2RP150L-8   | 2RP150M-8 | 150±20%               | 700                                | 20                                | 20                            | 500            | 100                           | 1.0  | 1.5                 | 2RP150-8            |
| 2RP230L-8   | 2RP230M-8 | 230±20%               | 700                                | 20                                | 20                            | 500            | 100                           | 1.0  | 1.5                 | 2RP230-8            |
| 2RP250L-8   | 2RP250M-8 | 250±20%               | 800                                | 20                                | 20                            | 500            | 100                           | 1.0  | 1.5                 | 2RP250-8            |
| 2RP300L-8   | 2RP300M-8 | 300±20%               | 900                                | 20                                | 20                            | 500            | 100                           | 1.0  | 1.5                 | 2RP300-8            |
| 2RP350L-8   | 2RP350M-8 | 350±20%               | 900                                | 20                                | 20                            | 500            | 100                           | 1.0  | 1.5                 | 2RP350-8            |
| 2RP400L-8   | 2RP400M-8 | 400±20%               | 1000                               | 20                                | 20                            | 500            | 100                           | 1.0  | 1.5                 | 2RP400-8            |
| 2RP470L-8   | 2RP470M-8 | 470±20%               | 1100                               | 20                                | 20                            | 500            | 250                           | 1.0  | 1.5                 | 2RP470-8            |
| 2RP600L-8   | 2RP600M-8 | 600±20%               | 1300                               | 20                                | 20                            | 500            | 250                           | 1.0  | 1.5                 | 2RP600-8            |
| 2RP800L-8   | 2RP800M-8 | 800±20%               | 1500                               | 20                                | 20                            | 500            | 250                           | 1.0  | 1.5                 | 2RP800-8            |

## Electrical Ratings

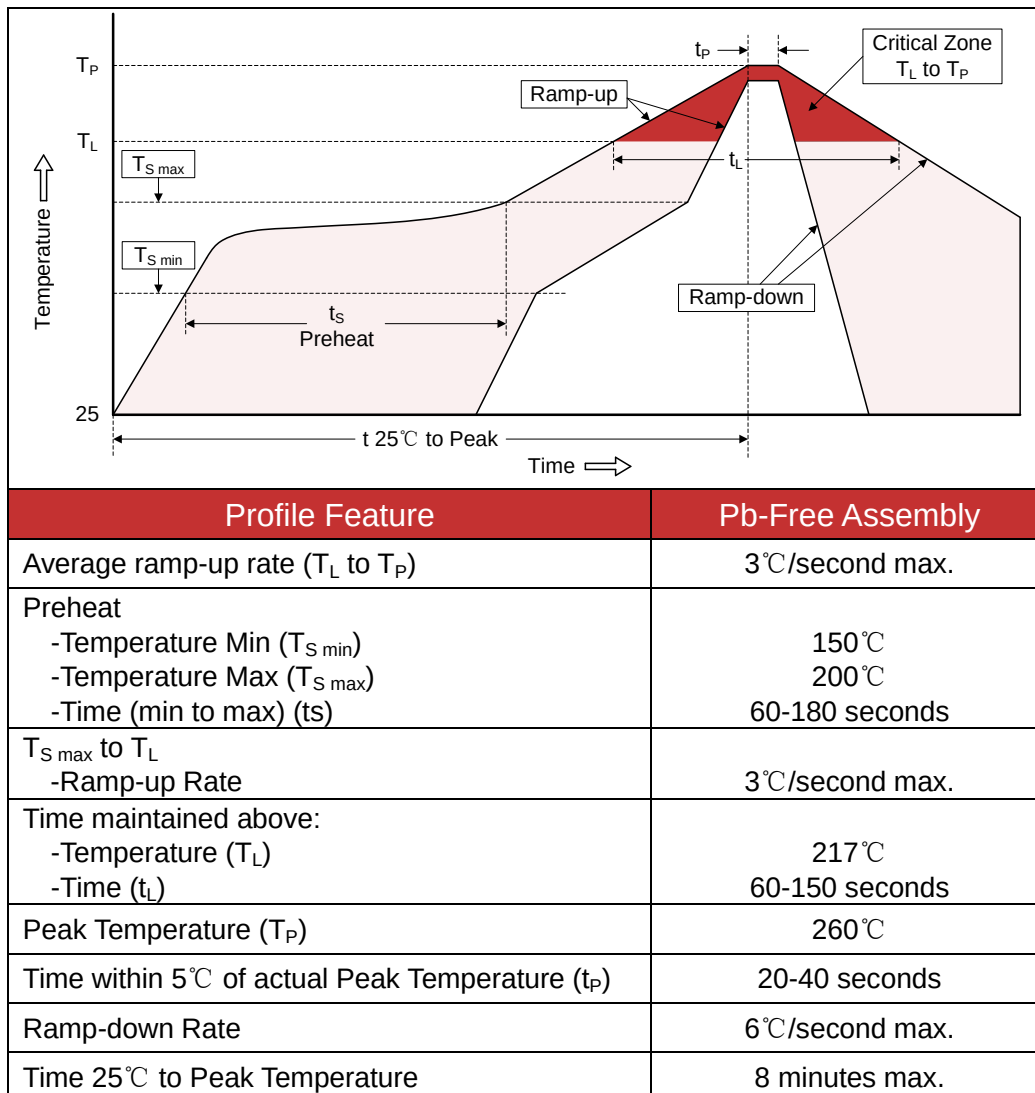
| Items                              | Test Condition/Description                                                                                                                                                                                                                                                                                                     | Requirement                 |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| DC Spark-over Voltage              | The voltage is measured with voltage ramp $dv/dt=100V/s$ .                                                                                                                                                                                                                                                                     | To meet the specified value |
| Maximum Impulse Spark-over Voltage | The maximum impulse spark-over voltage is measured with voltage ramp $dv/dt=1000V/\mu s$ .                                                                                                                                                                                                                                     |                             |
| Impulse Discharge Current          | <p>Maximum 8/20μs surge current that can be applied between two electrodes, 5 positive and 5 negative surges, with 3 minutes interval time, without causing the DC spark-over voltage to change more than 25% from its initial value.</p>  |                             |
| Alternating Discharge Current      | Rated RMS value of AC current at 50Hz, 1 sec. for 10 times with interval time 3 min. DC spark-over voltage shall not change more than ±25% from its initial value. $IR > 10^8$ ohms (-20%, +30% for 70~90V).                                                                                                                   |                             |
| Insulation Resistance              | The resistance of gas tube shall be measured between two electrodes.                                                                                                                                                                                                                                                           |                             |
| Capacitance                        | The capacitance of gas tube shall be measured between two electrodes. Test frequency: 1MHz                                                                                                                                                                                                                                     |                             |

## Recommended Soldering Conditions

### Wave Soldering



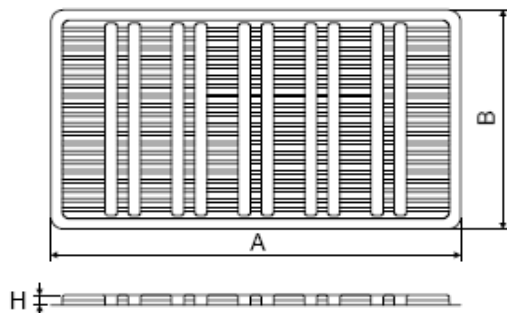
### Reflow Soldering



## Packaging

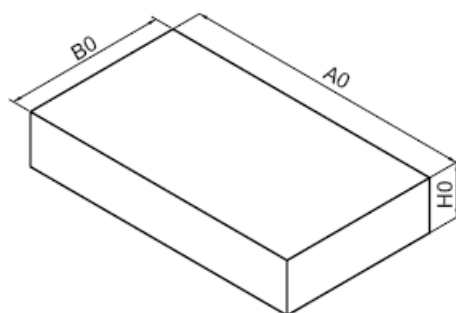
### Axial Packing (Bulk)

#### Skin packing



| Symbol           | Dimension (mm) |           |
|------------------|----------------|-----------|
|                  | Spec.          | Tolerance |
| A                | 265.0          | ±5.0      |
| B                | 146.0          | ±5.0      |
| H                | 8.5            | ±0.5      |
| Quantity: 100pcs |                |           |

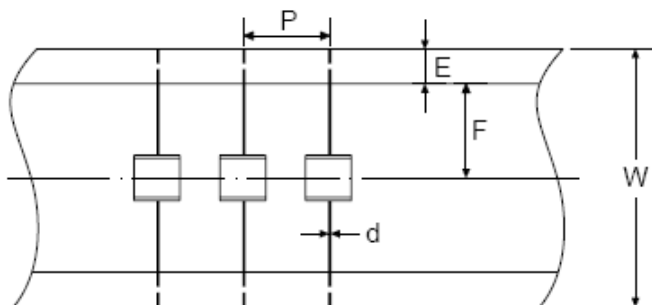
#### Inner box



|                  |       |      |
|------------------|-------|------|
| A0               | 270.0 | ±2.0 |
| B0               | 150.0 | ±2.0 |
| H0               | 50.0  | ±2.0 |
| Quantity: 500pcs |       |      |

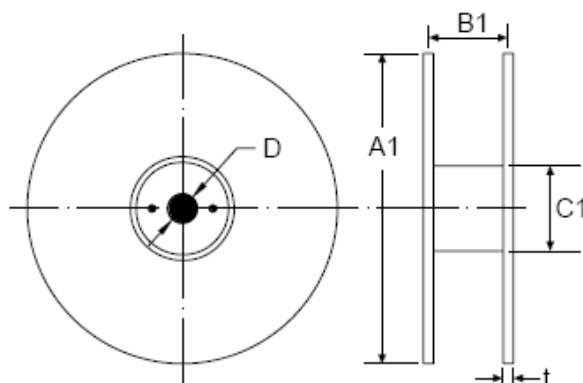
### Axial Packing (Tape & Reel)

#### Tape



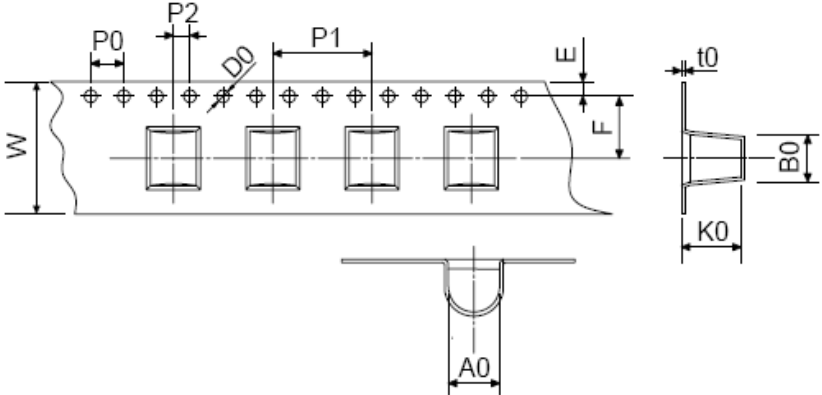
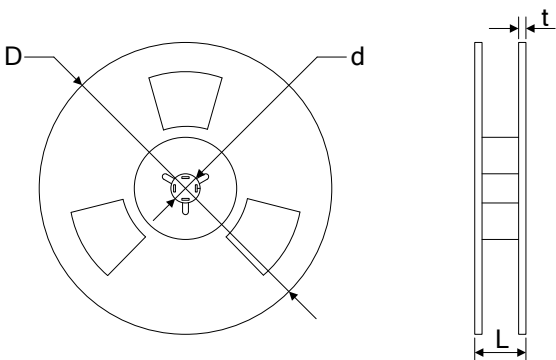
| Symbol | Dimension (mm) |           |
|--------|----------------|-----------|
|        | Spec.          | Tolerance |
| P      | 10.0           | ±0.5      |
| W      | 65.0           | ±1.0      |
| E      | 6.0            | ±0.5      |
| F      | 26.5           | ±0.5      |
| d      | 0.8            | ±0.1      |

#### Reel



|                  |       |      |
|------------------|-------|------|
| A1               | 330.0 | ±2.0 |
| B1               | 70.0  | ±2.0 |
| C1               | 82.0  | ±2.0 |
| D                | 25.0  | ±0.5 |
| t                | 2.0   | ±0.2 |
| Quantity: 500pcs |       |      |

# SMD Packing (Tape & Reel)

| Tape                                                                                | Symbol           | Dimension (mm) |           |
|-------------------------------------------------------------------------------------|------------------|----------------|-----------|
|                                                                                     |                  | Spec.          | Tolerance |
|    | W                | 16.00          | ±0.20     |
|                                                                                     | P0               | 4.00           | ±0.10     |
|                                                                                     | P1               | 12.00          | ±0.20     |
|                                                                                     | P2               | 2.00           | ±0.10     |
|                                                                                     | D0               | 1.55           | ±0.05     |
|                                                                                     | E                | 1.75           | ±0.10     |
|                                                                                     | F                | 7.50           | ±0.10     |
|                                                                                     | A0               | 8.20           | ±0.10     |
|                                                                                     | K0               | 8.50           | ±0.10     |
|                                                                                     | B0               | 7.50           | ±0.10     |
|                                                                                     | t0               | 0.50           | ±0.10     |
|  | D                | 330.00         | ±2.00     |
|                                                                                     | d                | 13.00          | ±0.50     |
|                                                                                     | L                | 20.00          | ±2.00     |
|                                                                                     | t                | 2.00           | ±0.20     |
|                                                                                     | Quantity: 500pcs |                |           |